

# Operating Instructions



## Zone 2 Ex n Field Device Coupler

> 9410/34



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## 2 General Information

### 2.1 Manufacturer

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### 2.2 Operating Instructions Information

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Publication Code: 2013-07-24·BA00·III·en·01  
Subject to alterations.

## 3 General Safety Instructions

### 3.1 Safety Instructions for Assembly and Operating Personnel

The operating instructions contain basic safety instructions which are to be observed during installation, operation and maintenance. Non-observance will endanger persons, plant and the environment.

#### **WARNING**

#### **Risk due to unauthorised work being performed on the device!**

- ▷ Risk of injury and damage to equipment.
- ▶ Assembling, installation, putting into service, operation and maintenance must only be performed by personnel both authorised and suitably trained for this purpose.

**When installing the devices:**

- ✗ When using the device in Zone 2, the device must be built into an enclosure which corresponds at least to the requirements of IEC/EN 60079-15.
- ✗ The connection components (e.g. cable entries, switches, displays, etc.) of the enclosure must comply with the requirements of IEC/EN 60079-15.
- ✗ Make sure that the maximum permissible ambient temperatures for the enclosure are not exceeded.

**Before assembly/putting into service:**

- ▶ Read through the operating instructions.
- ▶ Give adequate training to the assembly and operating personnel.
- ▶ Ensure that the contents of the operating instructions are fully understood by the personnel in charge.
- ▶ The national assembly and installation regulations (e.g. IEC/EN 60079-14) apply.

**When operating the devices:**

- ▶ Ensure the operating instructions are made available on location at all times.
- ▶ Observe safety instructions.
- ▶ Observe national safety instructions and accident prevention regulations.
- ▶ Operate the device according to its performance data only.
- ▶ Servicing/maintenance or repair work which are not described in the operating instructions must not be performed without prior agreement with the manufacturer.
- ▶ Any damage can invalidate the explosion protection.
- ▶ Any alterations and modifications to the device impairing its explosion protection are not permitted.
- ▶ Install and use the device only if it is undamaged, dry and clean.

**If you have questions:**

- ▶ Contact the manufacturer.







**3.2 Warnings**

Warnings are sub-divided in these operating instructions according to the following scheme:






 <b>WARNING</b>
<b>Type and source of the danger!</b> <ul style="list-style-type: none"> <li>▷ Possible consequences.</li> <li>▶ Measures for avoiding the danger.</li> </ul>

They are always identified by the signalling word “WARNING” and sometimes also have a symbol which is specific to the danger involved.

### 3.3 Symbols Used

	Action request: Describes actions to be carried out by the user.
	Reaction sign: Describes the results or the reactions to the actions taken.
	Bullet
	Information sign: Describes notes and recommendations.
	Warning symbol; danger due to energised parts!
	Warning symbol: danger due to explosive atmosphere!





## 4 Intended Field of Application

 <b>WARNING</b>	
<b>Use the device in accordance with its designated use only!</b>  Otherwise, the manufacturer's liability and warranty will expire.  The device may only be used according to the operating conditions described in these operating instructions.  The device must be used in areas subject to explosion hazards only according to these operating instructions.	
	The Field Device Coupler 9410/34-...-30 has four spurs. The Field Device Coupler 9410/34-...-40 has eight spurs. The Field device Coupler 9410/34-...-60 has twelve spurs.

The device couplers of the Series 9410/34 are suitable for use in the hazardous area of Zone 2.


They are used to connect four, eight or twelve "Ex nA" / "Ex nL" or "Ex ic" field devices or "Ex d", "Ex m" or "Ex q" Zone 1 field devices to a non-intrinsically safe high-energy trunk.

#### Designated use

-  For all fieldbuses with an IEC 61158-2 physical layer, e.g. Foundation Fieldbus H1 and Profibus PA.
-  When installed in Zone 2, the trunk connections comply with type of protection "Ex nA".
-  When operating fieldbus devices of type of protection "Ex nA", the spurs also comply with type of protection "Ex nA".
-  When operating fieldbus devices of type of protection "Ex nL" or "Ex ic", the trunk must be supplied, according to IEC/EN 60079-11, with "Ex ic voltage limiter", e.g. via the R. STAHL fieldbus power supply 9412/01 or 9412/02).

## Overview of explosion protection for field device couplers, trunks and spurs

Zone 2 Ex n Field Device Coupler	Zone 0	Zone 1	Zone 2	Non-hazardous area
9410/34-330-30, 9410/34-330-40, 9410/34-330-60 without enclosure	not permitted	not permitted	Enclosure as per IEC 60079-15 required	o.k.
Trunk	not permitted	not permitted	Ex nA	o.k.
Spurs and field devices	not permitted	Ex d / Ex m / Ex q	Ex nA / Ex ic / Ex nl or Ex d / Ex m / Ex q	o.k.

	The R. STAHL enclosures Series 8146 (polyester), 8125 (sheet steel or stainless steel), 8126 (stainless steel) and 8150 (stainless steel) meet the requirements indicated above.
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## 5 Technical Data

### Marking

IECEX  
Europe (ATEX)

Ex nA [ic] IIC T4 Gc  
II 3 G Ex nA [ic] IIC T4 Gc

### Certificates

IECEX  
Europe (ATEX)

IECEX BVS 11.0015X  
BVS 11 ATEX E 031 X

### Installation

in Zone 2 and in the safe area

### Safety data (CENELEC) per spur

Max. voltage  $U_0$   
Max. current  $I_0$   
Max. output power  
Internal capacitance  
Internal inductance  
Max. external capacitance  
Max. external inductance

$U_0$  from connected fieldbus power supply  
54 mA (rectangular characteristic)  
 $P_0 = 1.35 \text{ W}$  (decreases at  $U_i < 25 \text{ V}$  acc.  $P = U \cdot I$ )  
 $C_i = 110 \text{ pF}$   
 $L_i = 0 \text{ mH}$   
 $C_0 = 80 \text{ nF}$  (for IIC)  
 $L_0 = 0,27 \text{ mH}$  (for IIC)

### Data transmission

between trunk and spurs

passive, no repeater function

Trunk,  
not intrinsically safe / Ex nA

Connections  
Minimum input voltage

2 trunk connections (A, B), internally bridged  
10.3 V  
acc. to FF-846  
Note: this guarantees an output voltage (spurs) at full load of min. 9.3 V

Voltage range

9 ... 32 V  
9 ... 25 V when used with spurs "Ex ic"

Undervoltage monitoring

$U < 9 \text{ V}$ , spurs deenergized  
LED "PWR" = OFF

Surge protection

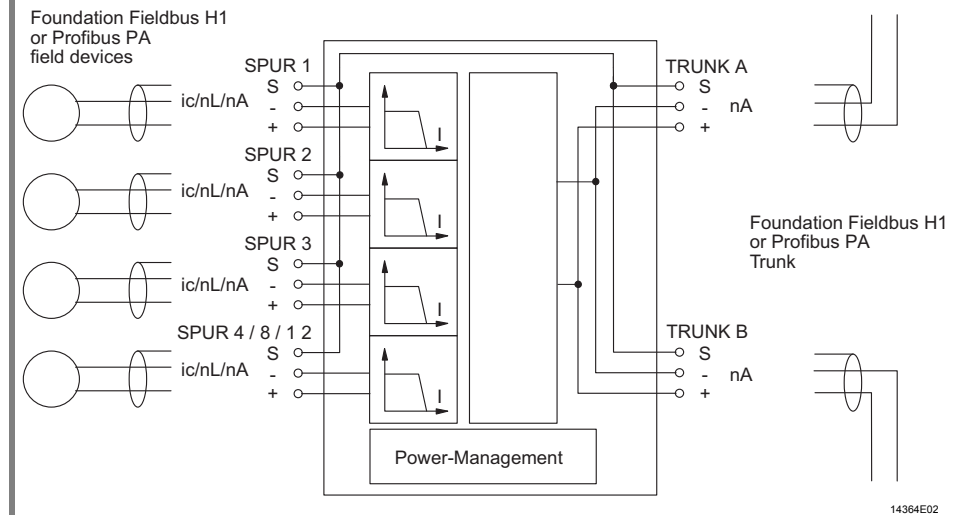
yes

Max. current consumption

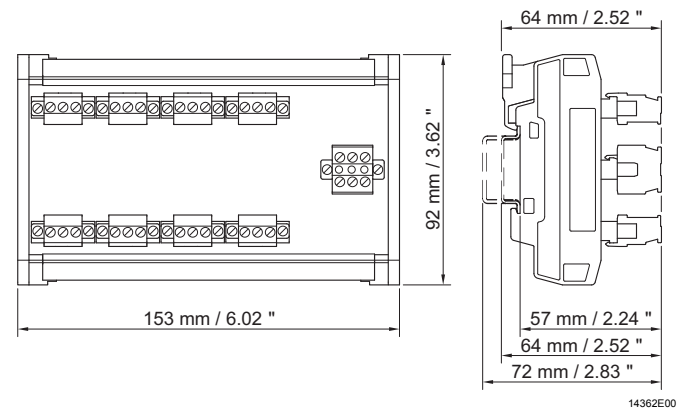
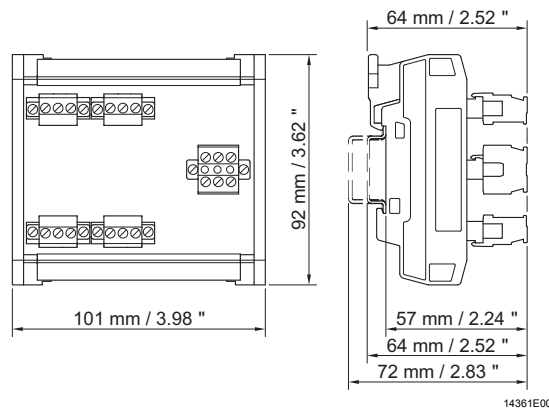
	9410/34-...-30 (4 spurs)	9410/34-...-40 (8 spurs)	9410/34-...-60 (12 spurs)
0 mA each spur	25 mA	25 mA	25 mA
20 mA each spur	105 mA	185 mA	265 mA
41 mA each spur	189 mA	353 mA	517 mA
3 / 7 / 11 spurs at 41 mA, 1 spur in short-circuit	198 mA	362 mA	526 mA
Short-circuit all spurs	75 mA	75 mA	75 mA

Trunk, not intrinsically safe / Ex nA		
Power management	When the trunk voltage exceeds 9 V the spurs are energized one after the other to avoid high starting current resulting from field devices. A short circuit detected on a spur will deenergize the respective spur until the short-circuit is removed. Regardless how many spurs are short-circuited the trunk is loaded with max one spur short-circuit current. Thus the trunk current and the device power dissipation are minimized under all conditions.	
Max. power dissipation	1.2 W	
Indication	LED green „PWR“ (U ≥ 9 V from trunk)	
Reverse polarity protection	yes	
Rated operational current	≤ 2 A	
Voltage drop trunk A / trunk B	≤ 10 mV at 2 A / 25 °C	
Terminating resistor	extern (e.g. R. STAHL Type 9418)	
Spurs, Ex ic / nA / nL		
Note	Spur ic and nL in combination with voltage limited fieldbus power supply only (e.g. R. STAHL Types 9412/01 or 9412/02)	
Quantity	4, 8, 12	
Number of field devices per spur	1	
Max. cable length	120 m	
Voltage drop trunk / spur	≤ 1 V	
Current range	0 ... 41 mA per spur	
Max. short-circuit current	50 mA	
Earthing of cable shields (trunk and spurs)		
Connecting over FDC	to terminals "S", connected to trunk and spurs, optionally to earthing bar, see accessories and spare parts set earthing bar 4 K or 8 K	
Fault detection		
Spur short-circuit	50 mA	
Indication of short-circuit per spur	LED red "SPUR 1" ... "SPUR 12": ON	
Ambient conditions		
Ambient temperature	- 40 ... + 75 °C	
Storage temperature	- 40 ... + 80 °C	
Relative humidity (no condensation)	< 95 %	
Electromagnetic compatibility	Tested to the following standards and regulations: EN 61326 (IEC/EN 61000-4-1...6 and 11; EN 55022 class B); NAMUR NE 21 (IEC/EN 61000-4-1...6, 8 and 11; EN 55022 class B)	
<b>Mechanical Data</b>		
Terminals	3-pole (+, -, screen)	Screw terminals trunk / spurs
	rigid	0.2 ... 2.5 mm <sup>2</sup>
	flexible	0.2 ... 2.5 mm <sup>2</sup>
	flexible, end covering sleeves	0.25 ... 2.5 mm <sup>2</sup>
Assembly	on DIN rail, EN 50022 (NS 35/15, NS 35/7.5) or mounting plate	
Installation position	vertical or horizontal	
Degree of protection		
Enclosure	IP30	
Terminals	IP20	
Fire protection class (UL-94)	V0	

Installation conditions  
Connection diagram

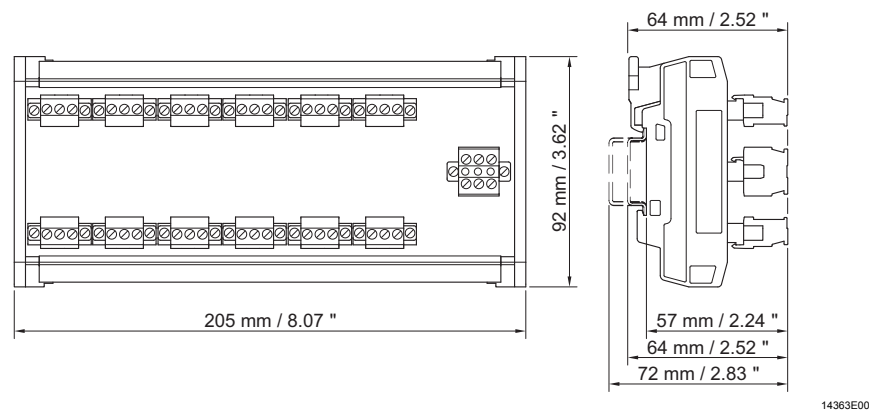


Dimensional Drawings (All Dimensions in mm / inch) - Subject to Alterations



**9410/34-330-30**  
Field device coupler, 4 spurs

**9410/34-330-40**  
Field device coupler, 8 spurs



**9410/34-330-60**  
Field device coupler, 12 spurs

## 6 Description of Function

The field device coupler is used to connect up to four, eight or twelve non-intrinsically safe, non-sparking (nA) or intrinsically-safe (ic) or energy-limited (nL) field devices to a non-intrinsically safe trunk.

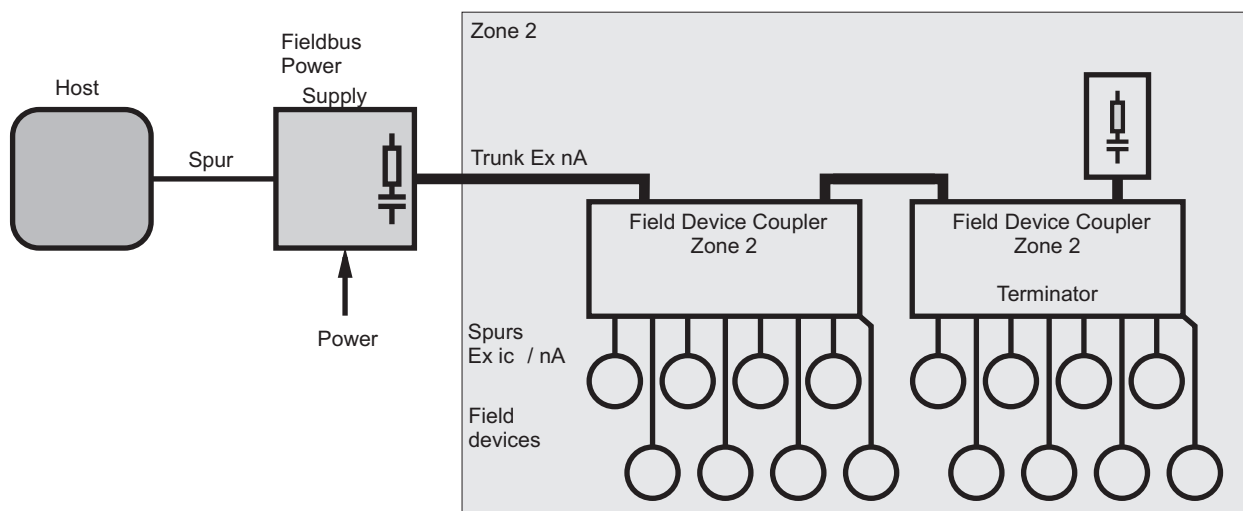
If intrinsically safe spurs (ic) or energy-limited spurs (nL) are used, a fieldbus power supply which supplies the trunk with limited voltage complying according to type of protection "Ex ic", according to DIN EN 60079-11, must be connected upstream (see chapter "Installation").

The field device coupler works on the physical level, i.e., it works independently of the protocol used. It can therefore be used for any fieldbus which complies with IEC 61158-2. At the moment, these are the Foundation Fieldbus H1 and the Profibus PA.

Each field device can be supplied with a maximum current of 41 mA. As short-circuit protection, each spur is equipped with a functional current limiting to 50 mA.

If the field device coupler is operated as the last device on the trunk, it must be terminated standard-compliant with a terminating resistor (e.g. R. STAHL type 9418) (see also chapter "Installation").

The trunk voltage connected to the field device coupler is monitored for undervoltage (< 9 V) and indicated by an LED. Other LEDs indicate the status of the spurs.



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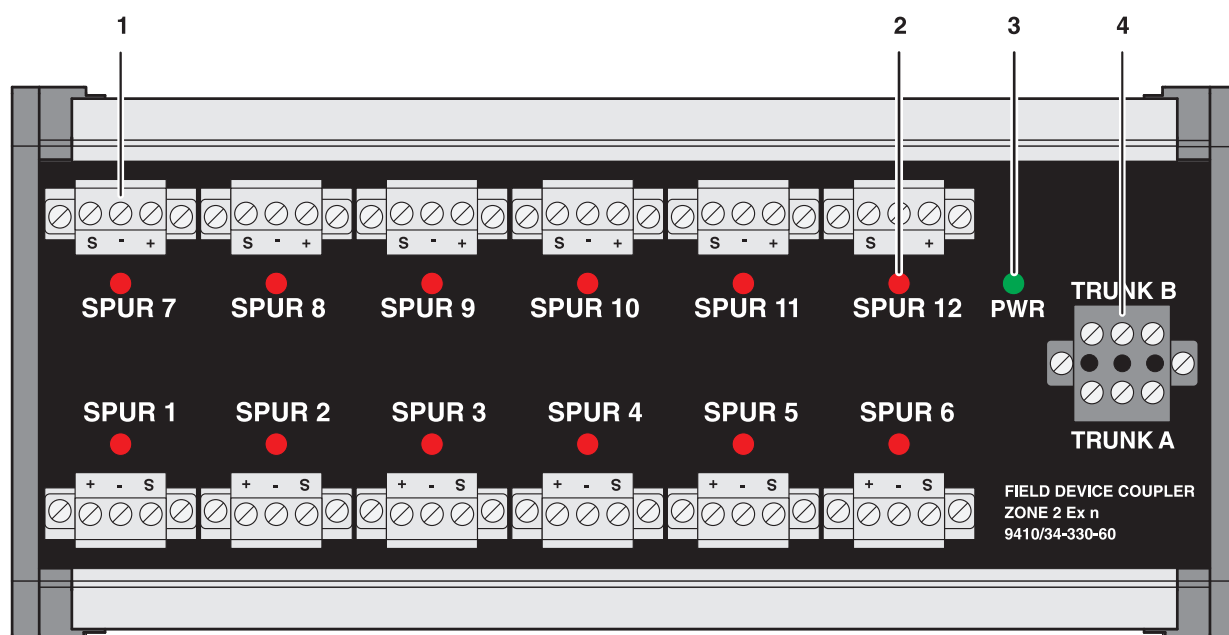
### Power management

As soon as the voltage of 9 V on the trunk is exceeded, the spurs are activated one after the other to prevent a high start-up current caused by the field devices. In the event of a short-circuit, the spur in question is deactivated until the short-circuit is eliminated.

If several spurs are affected by a short-circuit, the trunk is loaded only with one short-circuit current. This minimises the current consumption of the trunk and the power dissipation of the field device coupler under all operating conditions.



## 7 Device Design



14458E00

- |   |   |
|---|---|
| 1 | Detachable terminals for spur 1 ... spur 4, spur 1 ... spur 8 or spur 1 ... spur 12   |
| 2 | Terminals for trunks A and B<br>TRUNK A: connection for incoming trunk<br>TRUNK B: connection for outgoing trunk or external terminator |
| 3 | Error indication LEDs for spur 1 ... spur 4, spur 1 ... spur 8 or spur 1 ... spur 12  |
| 4 | Operation indication LED PWR (Power)  |

## 8 Transport, Storage and Disposal

### Transport

- Shock-free in its original carton, do not drop, handle carefully.



### Storage

- Store in a dry place in its original packaging.
- Permitted temperature range for storage in original packaging: - 40 °C ... + 80 °C


### Disposal

- Ensure environmentally friendly disposal of all components according to the legal regulations.


## 9 Assembly

⚠ WARNING	
	<b>Incorrectly installed components!</b> <ul style="list-style-type: none"> <li>▷ If the components are installed incorrectly, explosion protection is no longer guaranteed.</li> <li>▶ Carry out assembly strictly according to the instructions and national safety and accident prevention regulations (e.g. IEC/EN 60079-14).</li> </ul>
	Do not select a mounting location that requires a cable length exceeding the maximum permissible value (see chapter "Cable lengths for trunk and spurs").

### 9.1 Assembly with Enclosure


	For installation in Zone 2, enclosures suitable for Zone 2 are available.
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### 9.2 Assembly without Enclosure

	Field device couplers without enclosures are always delivered ready for DIN rail mounting.
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- ✗ For installation in non-hazardous areas, e.g. in normal control cabinet or open rack.
- ✗ For assembly in an appropriate enclosure not mentioned above.

## 10 Installation

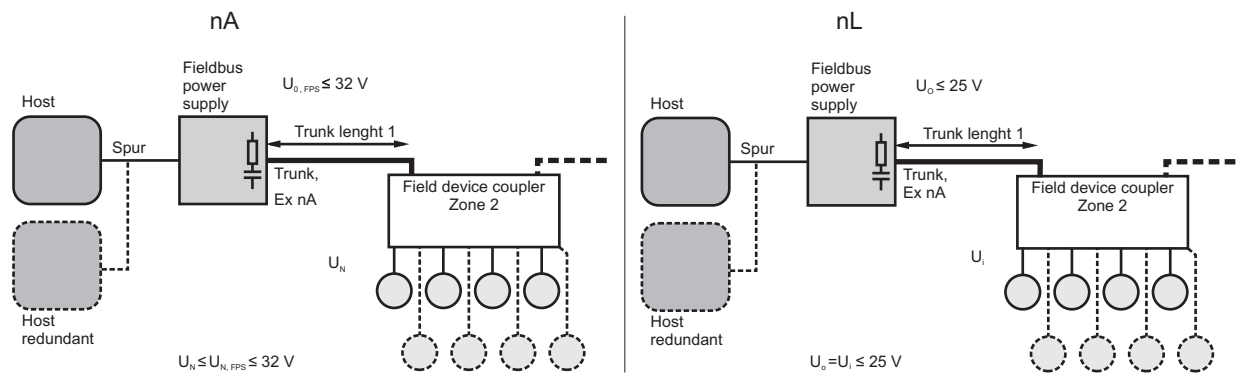
⚠ WARNING	
	<b>Incorrectly installed components!</b> <ul style="list-style-type: none"> <li>▷ Explosion protection cannot be guaranteed any more if the components are installed incorrectly.</li> <li>▶ Carry out the installation in strict accordance with the instructions and national safety and accident prevention regulations (e.g. IEC/EN 60079-14).</li> </ul>

### 10.1 Engineering

#### Engineering in type of protection "Ex nA" or "Ex ic / nL"

	<p>When operating fieldbus devices of type of protection "Ex ic" (acc. to IEC 60079-11), "Ex nL" (acc. to IEC 60079-15 until 2010) or "ic-FISCO" (acc. to IEC 60079-27 and IEC 60079-11), the required intrinsically safe current limiting <math>I_0</math> is guaranteed by the field device coupler. The voltage limiting required in each case <math>U_0</math> (depending on <math>U_i</math> of the fieldbus device to be connected) is done by selecting a suitable, ic/nL voltage limited fieldbus power supply:</p> <p>for fieldbus devices according to ic-FISCO:  <math>U_i &gt; 17.5 \text{ V} \rightarrow U_0 &lt; 17.5 \text{ V} = R</math>. STAHL fieldbus power supply 9412/01</p> <p>for fieldbus devices according to ic / nL:  e.g. <math>U_i &gt; 24 \text{ V} \rightarrow U_0 &lt; 24 \text{ V} = R</math>. STAHL fieldbus power supply 9412/02</p>
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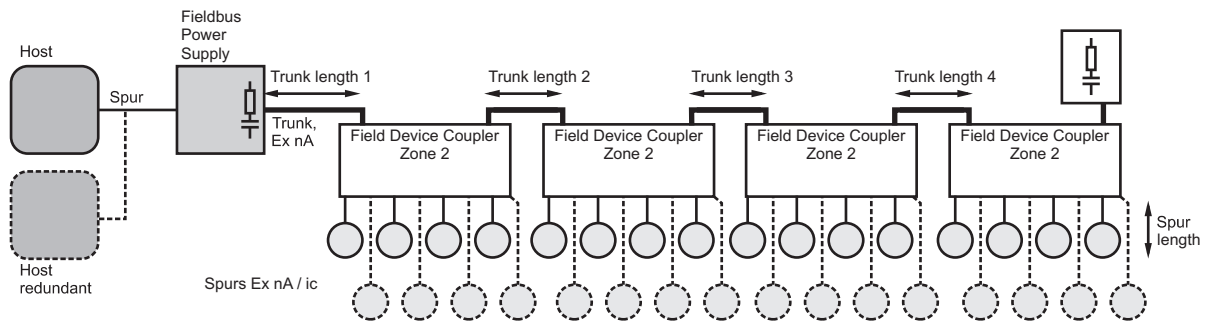
## Engineering in explosion-proof type of protection nA or ic (nL)



12698E01

### Engineering example 1

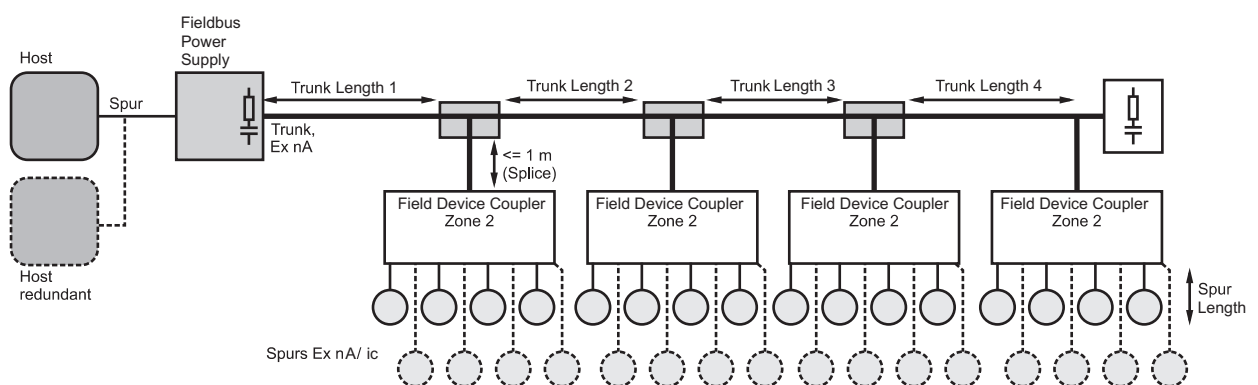
Fieldbus segment with "daisy chain structure". The trunk is looped through the field device couplers.



14455E01

### Engineering example 2

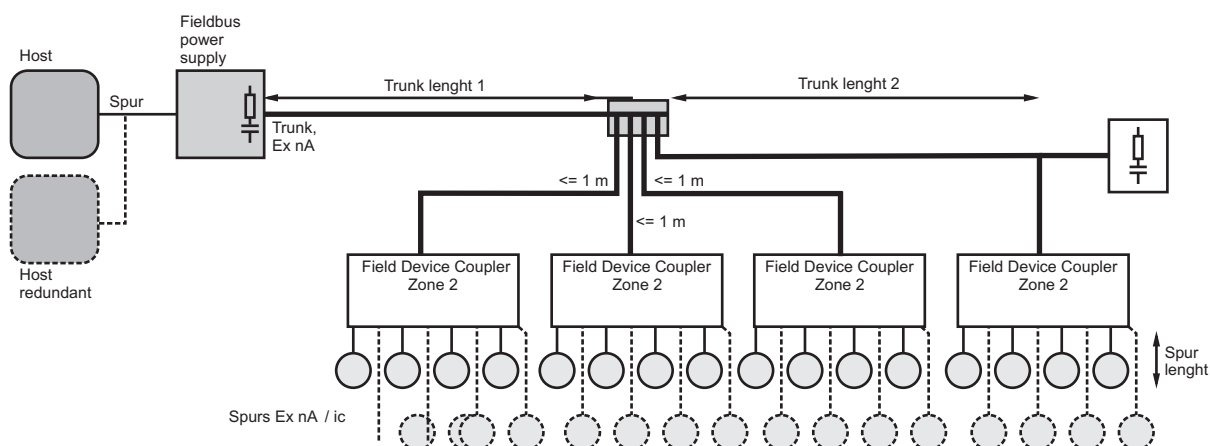
Fieldbus segment in which the field device couplers are connected to the trunk with junction boxes (T-connectors).



14456E01

### Engineering example 3

Fieldbus segment with star structure.



144587E01

## 10.2 Cable Lengths for Trunk and Spurs in Accordance with IEC 61158-2, Annex B (without Considering the Explosion Protection)

	The maximum length of all cables (all trunks, all spurs) per segment must not exceed 1900 m.
	For engineering, use the Fieldbus Wizard Engineering Tool. Download available at <a href="http://www.fieldbus-solutions.info">www.fieldbus-solutions.info</a>

	Number of all field devices on the segment, including host(s)				
	1 ... 12	13 ... 14	15 ... 18	19 ... 24	25 ... 30
Max. cable length for spurs, 1 field device per spur	120 m	90 m	60 m	30 m	1 m
Max. cable length when a redundant host is used	90 m	60 m	30 m	1 m	1 m

	The actual trunk and spur lengths can be shorter due to voltage drop.
	The following generally applies: Spurs should be kept as short as possible.

## 10.3 Examples of Cable Lengths

**Cable lengths for trunk with 12 field devices at a current consumption of 15 mA each:**

	For engineering, use the Fieldbus Wizard Engineering Tool. Download available at <a href="http://www.fieldbus-solutions.info">www.fieldbus-solutions.info</a>
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Assumption:



- ✗ Fieldbus power supply with  $U_{out} > 25 \text{ V}$  /  $I_{out} > 350 \text{ mA}$ .
- ✗ Current consumption of host is 20 mA.
- ✗ Type A fieldbus cables (loop resistance: 48 Ohm/1000 m) are used.
- ✗ Three field device couplers are located at the end of the trunk.
- ▷ Maximum trunk length: approx. 1000 m

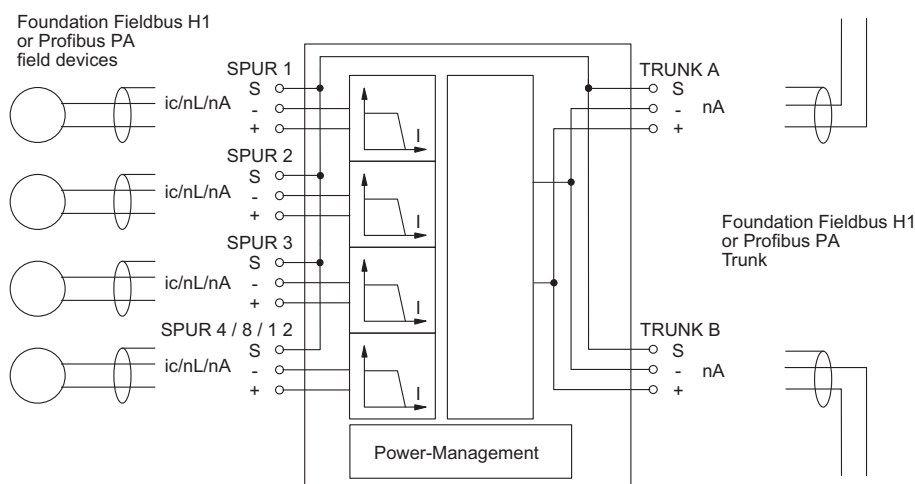
## Cable lengths for trunk with 16 field devices at a current consumption of 15 mA each:

Assumption:

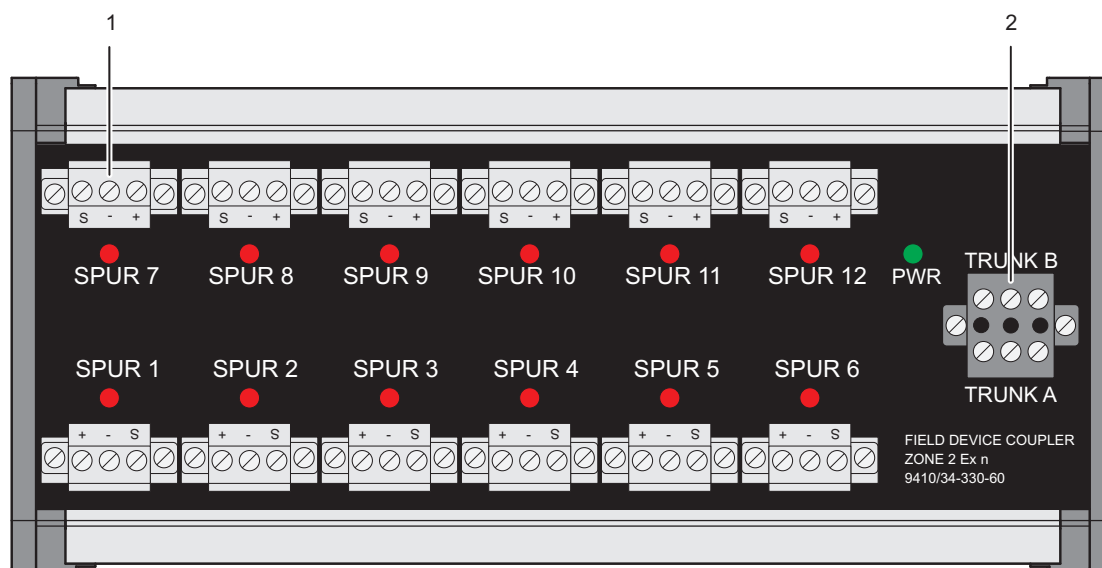
- ✗ Fieldbus power supply with  $U_{out} > 25 \text{ V}$  /  $I_{out} > 350 \text{ mA}$ .
- ✗ Current consumption of host is 20 mA.
- ✗ Type A fieldbus cables (loop resistance: 48 Ohm/1000 m) are used.
- ✗ Four field device couplers are located at the end of the trunk.
- ▷ Maximum trunk length: approx. 800 m

### 10.4 Connection

⚠ WARNING	
	<p><b>Danger due to live parts!</b></p> <ul style="list-style-type: none"> <li>▷ Explosion protection is not guaranteed any longer.</li> <li>▶ Before carrying out work on the trunk, the fieldbus must be disconnected from the supply.</li> <li>▶ Secure the fieldbus against unauthorised activation.</li> </ul> <p><b>EXCEPTION:</b> For spurs which comply with type of protection "ic" or "nL", work on live parts is permissible.</p>
	<p>The screw terminals for trunk and spurs are detachable. This facilitates the connection of cables on the terminals.</p>




14364E00





11182E00

## Trunk

	TRUNK A and TRUNK B (+,-,S) are connected to each other in terminal "TRUNK A / TRUNK B".
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- ▶ Disconnect the fieldbus from the power supply.
- ▶ Open the enclosure, if necessary.
- ▶ Insert the cables in the corresponding terminals of terminal "TRUNK A / TRUNK B" (2):  
TRUNK A: cable from the host or the fieldbus power supply  
TRUNK B: if required, cable to the next field device coupler or terminator (if it is the last device on the trunk)
- ▶ Close/tighten the terminals.
- ▶ Close the enclosure, if necessary.


## Spurs

	Only <b>one</b> field device may be connected on each spur connection.
	For spurs which comply with type of protection "ic" or "nL", work on live parts is permissible.

- ▶ Disconnect the fieldbus from the power supply.
- ▶ Open the enclosure, if necessary.
- ▶ Insert the cables in the corresponding terminals of the detachable terminals "SPUR 1" ... "SPUR X" (1):
- ▶ Close/tighten the terminals.
- ▶ Plug the detachable terminals on the terminal block and secure them with safety screws against loosening.
- ▶ Close the enclosure, if necessary.

## 10.5 Earthing

### Field device coupler without enclosure

	The field device coupler does not have to be connected to earth.
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The screens of trunk A, trunk B and the spurs are internally connected via terminals "S".

### Field device coupler with metallic enclosure

- ▶ Connect the enclosure to earth via the shortest possible distance.

## 10.6 Earthing of Cable Shields

There are different regulations regarding earthing of cable shields:

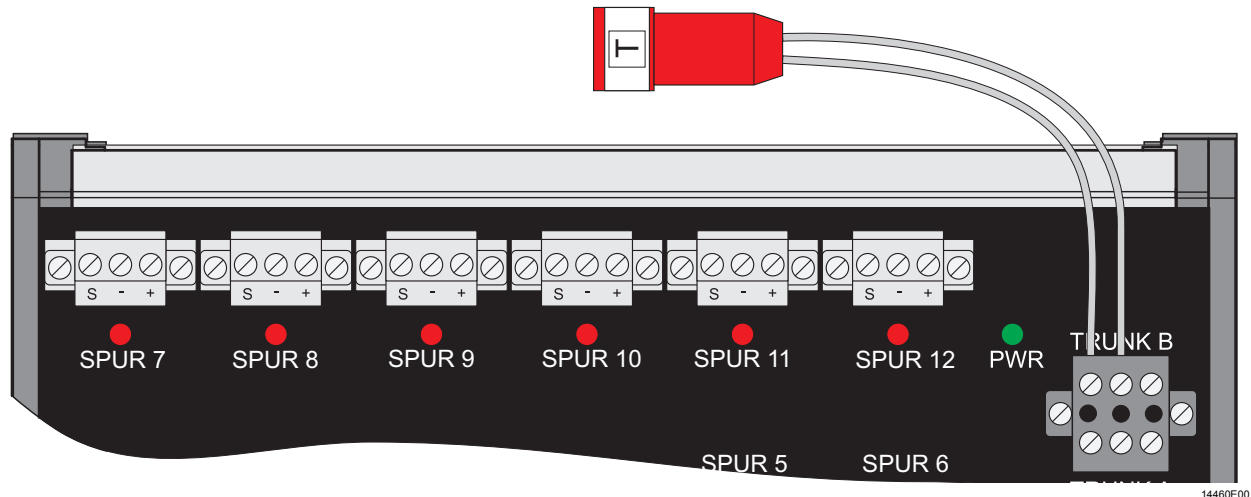
- ✗ IEC / EN 60079-14, section 12.2.2.3
- ✗ Profibus Technical Guideline "Profibus PA" User and Installation Guideline, section 3.3.3
- ✗ Fieldbus Foundation "System Engineering Guidelines" AG 181, rev. 3.1, chapter 7.3, section 6.2f

## 10.7 Terminating Resistor (terminator)

	A terminating resistor is required at both ends of the trunk. Spurs are operated without terminating resistors.
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**The field device coupler is located at the end of the trunk**

(termination with external terminating resistor)



- ▶ Connect the external terminating resistor 9418 to the terminals "TRUNK B +" and "TRUNK B -".
- ▷ The external terminating resistor is active.

## 11 Putting into Service

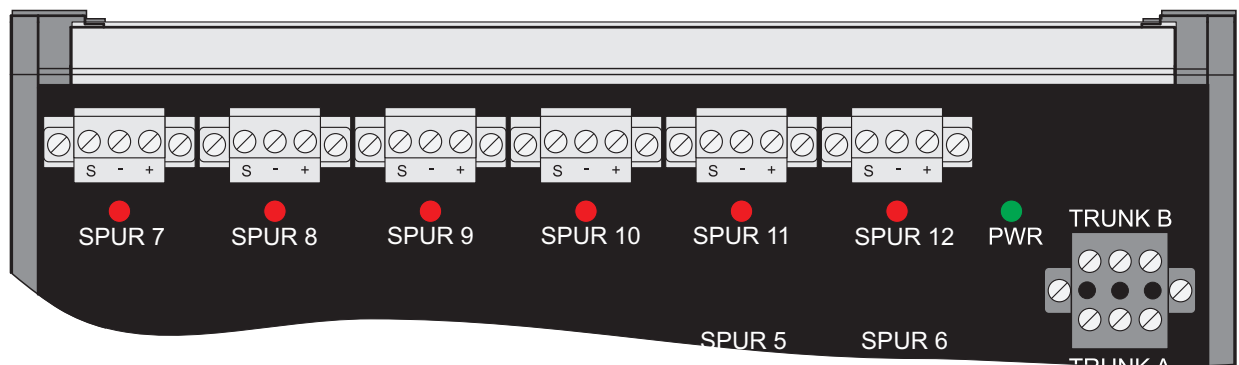
### Before putting into service

- ▶ Test the components for correct operation and installation in accordance with the operating instructions and other applicable specifications.
- ▶ Check whether cables and lines are clamped properly.
- ▶ Inspect enclosure for damage.
- ▶ Inspect enclosure for foreign bodies.
- ▶ Check whether all unused cable glands and holes are sealed off properly.
- ▶ The voltage on the trunk must be at least 9 V DC.
- ▶ The voltage on the connected field devices must be at least 9 V DC.

### Putting into Service

- ▶ Observe the national regulations when putting into service.
- ▶ Observe the directives in accordance with IEC/EN 60079-17 when performing functional checks.

## LED displays, description of function





14459E00

PWR, green	SPUR 1 ... SPUR 4, SPUR 1 ... SPUR 8 or SPUR 1 ... SPUR 12, red	Description
Off	Off	No voltage on the trunk
On	Off	Normal mode: Corresponding spur connected to field device, $0 \text{ mA} \leq I \leq 40 \text{ mA}$ In case of error: Voltage on the trunk o.k. $U \geq 9 \text{ V}$ Open-circuit on the corresponding spur Spur not connected
	On	Short-circuit on the corresponding spur 50 mA



## 12 Maintenance

### 12.1 Regular maintenance work



 <b>WARNING</b>	
	<p><b>Danger due to live parts!</b></p> <ul style="list-style-type: none"> <li>▷ Explosion protection is not guaranteed any longer.</li> <li>▷ Before carrying out work on the trunk, the fieldbus must be disconnected from the supply.</li> <li>▷ Secure the fieldbus against unauthorised activation.</li> </ul> <p>EXCEPTION: For spurs which comply with type of protection "ic" or "nL", work on live parts is permissible.</p>

- ▷ Consult the relevant national regulations (e.g. IEC/EN 60079-17) to determine the type and extent of inspections.
- ▷ Plan the intervals so that any defects in the equipment which may be anticipated are promptly detected.

#### To check as part of the maintenance schedule:

- ✗ Check if the cables are clamped properly.
- ✗ Check if safety screws of the plug-in terminals are tightened properly.
- ✗ Inspect tightness of the cable glands.
- ✗ Inspect the enclosure for visual damage.
- ✗ Check the seal between enclosure and cover.
- ✗ Check the enclosure for moisture.
- ✗ Check for compliance with the permissible temperatures.
- ✗ Make sure that the device is used according to its designated use.

### 12.2 Repair work

 <b>WARNING</b>	
	<p><b>Danger due to improper maintenance/repairs</b></p> <ul style="list-style-type: none"> <li>▷ Explosion protection is not guaranteed any longer.</li> <li>▷ Repair work to the device must only be performed by R. STAHL.</li> </ul>

### 12.3 Cleaning

- ✗ Clean with a cloth, brush, vacuum cleaner or similar items.
- ✗ When cleaning with a damp cloth, use water or mild, non-abrasive, non-scratching cleaning agents.
- ✗ Never use aggressive cleaning agents or solvents.

# 13 EC Declaration Of Conformity

## EG-Konformitätserklärung EC-Declaration of Conformity Déclaration de Conformité CE



**R. STAHL Schaltgeräte GmbH • Am Bahnhof 30 • 74638 Waldenburg, Germany**  
erklärt in alleiniger Verantwortung, declares in its sole responsibility, déclare sous sa seule responsabilité,

dass das Produkt  
that the product  
que le produit

Zone 2 Ex n Feldgerätekoppler  
Zone 2 Ex n Field Device Coupler  
Zone 2 Ex n Coupleur pour appareils de terrain

Typ, type, type:

9410/34-3d0-f0  
d = 1, 2, 3 f = 3, 4, 6

Kennzeichnung, marking, marquage:

II 3G Ex nA [ic] IIC T4 Gc

mit der EG-Baumusterprüfbescheinigung:  
under EC-Type Examination Certificate:  
avec Attestation d'examen CE de type:

BVS 11 ATEX 031 X  
(DEKRA EXAM GmbH  
Dinnendahlstraße 9, 44809 Bochum)

auf das sich diese Erklärung bezieht, mit den folgenden Normen oder normativen Dokumenten übereinstimmt  
which is the subject of this declaration, is in conformity with the following standards or normative documents  
auquel cette déclaration se rapporte, est conforme aux normes ou aux documents normatifs suivants

Bestimmungen der Richtlinie Terms of the directive Prescription de la directive	Nummer sowie Ausgabedatum der Norm Number and date of issue of the standard Numéro ainsi que date d'émission de la norme
1994/9/EG: ATEX-Richtlinie 1994/9/EC: ATEX Directive 1994/9/CE: Directive ATEX	EN 60079-0: 2009 EN 60079-11: 2007 EN 60079-15: 2010 EN 60079-27: 2008
2004/108/EG: EMV-Richtlinie 2004/108/EC: EMC Directive 2004/108/CE: Directive CEM	EN 61326-1: 2006
Allgemeine Normen ohne Bezug auf eine Richtlinie General standards without reference to a directive Normes générales sans référence à une directive	EN 50178: 1997 EN 61010-1: 2001 + Corrigendum / Errata

Waldenburg, 10.06.2011

Ort und Datum  
Place and date  
Lieu et date

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